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SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/313,476 09/30/94 KOCH

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MALINOWSKI, M

EXAMINER

ESM1/0305
ROCKWELL INTERNATIONAL CORPORATION
ATTN: GREGORY G. WILLIAMS
PATENT DEPARTMENT M/A 175-100
400 COLLINS ROAD, NE
CEDAR RAPIDS, IA 52498

ART UNIT PAPER NUMBER

2515

13

03/05/96

DATE MAILED: 03/05/96

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☐ This application has been examined ☒ Responsive to communication filed on January 25, 1996 This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), — days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- ☒ Notice of References Cited by Examiner, PTO-892.
- ☐ Notice of Draftsman's Patent Drawing Review, PTO-848.
- ☒ Notice of Art Cited by Applicant, PTO-1449.
- ☐ Notice of Informal Patent Application, PTO-152.
- ☐ Information on How to Effect Drawing Changes, PTO-1474.
- ☐

Part II SUMMARY OF ACTION

1. ☒ Claims 1, 3-9, and 11-24 are pending in the application.

Of the above, claims 16-22 are withdrawn from consideration.

2. ☒ Claims 2 and 10 have been cancelled.

3. ☒ Claims 1, 3-9, 11, and 12 are allowed.

4. ☒ Claims 13 are rejected.

5. ☒ Claims 14, 15, 23, and 24 are objected to.

6. ☐ Claims are subject to restriction or election requirement.

7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. ☐ Formal drawings are required in response to this Office action.

9. ☐ The corrected or substitute drawings have been received on . Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).

10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on , has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).

11. ☐ The proposed drawing correction, filed , has been ☐ approved; ☐ disapproved (see explanation).

12. ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. ; filed on .

13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14. ☐ Other

EXAMINER'S ACTION

Part III DETAILED ACTION

Election/Restriction

1. Claims 16-22 are withdrawn from further consideration by the examiner, 37 C.F.R. § 1.142(b) as being drawn to a nonelected invention. Election was made **without** traverse in Paper No. 8.

Since the applicant has not presented any arguments with respect to the merits of the restriction requirement, the restriction requirement has been made final.

Specification

2. The following is a quotation of the first paragraph of 35 U.S.C. § 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification is objected to under 35 U.S.C. § 112, first paragraph, as failing to adequately teach how to make and/or use the invention, i.e., failing to provide an enabling disclosure.

The invention, as described in claim 13, asserts that there is a layer which aligns the moieties of the liquid crystal material in an adjacent layer and that this aligning layer is one of a plurality of layers each with a varying tilt angle and a varying azimuthal angle.

The disclosure describes three embodiments of a compensator for a liquid crystal display having alignment layers and discloses an additional pretilt layer between the alignment layer and the other layers forming the compensator in the two nematic embodiments, but does not disclose that any of the alignment layers or pretilt layers have varying azimuthal angles. In fact, on page 26, lines 8-10, it is stated that the layer adjacent the pretilt layer differs from the pretilt layer in that the layer has a varying azimuthal angle unlike the pretilt layer. The disclosure (see page 24, lines 13-25 and page 29, line 23, through page 30, line 4) does not describe tilt angles in the alignment layer. For the smectic C embodiment (see page 27, lines 15-21), since the alignment layer is disclosed as being formed by oblique vapor deposition, there would be no variation in the tilt and azimuthal angles of the alignment layer.

Claim Objections

3. Claims 14, 15, 23, and 24 are objected to under 37 C.F.R. § 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See M.P.E.P. § 608.01(n). Accordingly, these claims have not been further treated on the merits.

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Claim Rejections - 35 USC § 112

4. Claim 13 is rejected under 35 U.S.C. § 112, first paragraph, for the reasons set forth in the objection to the specification.

Response to Amendment

5. Applicant's arguments filed on January 25 1996 have been fully considered but they are not deemed to be persuasive.

Since claims 14, 15, 23, and 24 are multiple dependent claims which depend upon other multiple dependent claims, these claims were not examined.

The rejection of claim 13 under 35 U.S.C. § 112, 1st Paragraph, could be overcome were claim 13 to be reworded so as to better differentiate the pretilt layer from the plurality of layers. As the claim stands, it asserts that the aligning layer in d) is one of the plurality of layers, each of which have the limitations of a), b), and c).

Claims 2 and 10 are acknowledged as having been cancelled.

Claims 16-22 have been withdrawn from consideration due to the restriction requirement.

Allowable Subject Matter

6. Claims 1, 3-9, 11, and 12 are allowable over the prior art of record.

7. Claim 13 would be allowable if rewritten or amended to overcome the rejection under 35 U.S.C. 112.

8. The following is an Examiner's statement of reasons for the indication of allowable subject matter:

As to claim 1, no prior art of record teaches or suggests a compensator for a liquid crystal display in which the compensator comprises a layer of birefringent material which comprises a polymer matrix including polymerized nematic material and unpolymerized nematic material and in which the tilt angle of the compensator varies along an axis normal to the layer of birefringent material and is limited to values between approximately 25 degrees and approximately 65 degrees.

Upon reconsideration, as to claims 3-9, 11, and 12, no prior art of record teaches a compensator for a liquid crystal display in which the azimuthal angle varies along an axis normal to the layer and the tilt angle is fixed between approximately 25 degrees and approximately 65 degrees along an axis normal to the layer nor a compensator in which the tilt angle varies along an axis normal to the layer of birefringent material. Kizaki et al., U.S. Patent No. 5,126,868, teach a compensator with a

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varying azimuthal angle (col. 9, lines 9-24) and a pretilt angle of between 10 degrees and 30 degrees.

As to claim 13, no prior art of record teaches or suggests a compensator for a liquid crystal display wherein the optical symmetry axis of each layer has a respective tilt angle which varies along an axis normal to the layer with the tilt angles of the adjacent layers varying in a positive sense and a negative sense respectively and wherein the optical symmetry axis of each layer has a respective azimuthal angle which varies along an axis normal to the layer with the azimuthal angles of adjacent layers varying in a positive sense and a negative sense respectively.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mazaki et al., U.S. Patent No. 5,460,748, teach a compensator which can have fixed tilt or twist angles (col. 3, lines 7-16).

Kizaki et al., U.S. Patent No. 5,126,868, teach a compensator with a varying azimuthal angle (col. 9, lines 9-24) and a pretilt angle of between 10 degrees and 30 degrees.

Clerc et al., U.S. Patent No. 4,813,770, teach a compensator for a liquid crystal display where the compensator comprises a layer of a birefringent material (col. 3, lines 9-19) having an optical symmetry axis defined by a tilt angle p , measured relative to the plane of the layer, and an azimuthal angle (inherent since the liquid molecules have a tilt), measured relative to a reference axis in the plane of the layer, wherein the tilt angle varies upon application of a voltage (col. 7, lines 18-35), and the azimuthal angle is substantially fixed along an axis normal to the layer (implied by col. 6, lines 20-21).

10. Applicant's amendment necessitated the new grounds of rejection. Accordingly, **THIS ACTION IS MADE FINAL**. See M.P.E.P. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

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A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter J. Malinowski whose telephone number is (703) 305-6531.

The Art Unit Fax number is (703) 308-7726.



**ANITA PELLMAN GROSS
PRIMARY EXAMINER
GROUP 2500**

wjm
February 27, 1996